

PROCEDURE FOR CALCULATING THE NUMBER OF SAMPLES NEED

Step 1

Run the analytical results through SAS (Statistical Analysis System) using the UNIVARIATE Procedure. (See attached SAS printout.)

Step 2

Get the Z values from the Z table (in any statistic book) for the desired confidence. In this case the confidence is 0.95 and the Z value is 1.645

Step 3

Solve for the equation:

$$n = (((z_1 + z_2)^2 s^2) / IA^2) + 0.5z_1^2$$

Note:

Since you are always going to use the 0.95 Z value (1.645) the equation becomes:

$$n = (((1.645 + 1.645)^2 s^2) / IA^2) + 0.5(1.645)^2$$

With s^2 being the variance and IA being the mean and solving the numerical part of the equation, the equation becomes:

$$n = 10.824((\text{variance}) / (\text{mean})^2) + 1.353$$

Step 4

Repeat for each of the elements and take the highest n value for the number of samples needed.